

Notice of Allowability

Application No.

10/002,732

Examiner

John B. Vigushin

Applicant(s)

LIN, CHARLES W.C.

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Application filed 15 November 2001.
2. ☒ The allowed claim(s) is/are 51-70.
3. ☒ The drawings filed on 24 January 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No. <u>0503</u> |
| 5 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. <u>2&5</u> | 6 <input type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

DETAILED ACTION

1. The Examiner acknowledges Applicant's second Preliminary Amendment, faxed on May 19, 2003 and received in TC 2800 on May 20, 2003, in which a new Abstract has been provided to replace the originally filed Abstract and the Specification has been amended.

Allowable Subject Matter

2. Claims 51-70 have been allowed.

3. The following is an examiner's statement of reasons for allowance:

As to Claims 51-60 and 61-70, patentability resides in the limitation wherein *the conductive trace is a single continuous piece of metal including a pillar, a routing line and an opening in the routing line having tapered sidewalls*, in combination with the other limitations of base Claims 51 and 61, respectively.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Gilleo et al. (US 5,971,253) discloses, in Figs. 10 and 11: an insulative base 522; a continuous conductive metal (copper) trace (col.10: 35-38; col.11: 11-16) comprising a pad 523, a lead 525 and auxiliary bonding pad 527 extending horizontally below the insulative base 522 (i.e., "embedded" in the insulative base 522; col.11: 25-29); a pillar 526 comprising a compliant (elastomeric) material 528 having an electrically conductive shell 530, the pillar 526 extending through and above the insulative base 522 (col.11: 2-11), and the conductive shell 530 establishing an electrical connection to pad 523 of the conductive trace (col.11: 16-17). The pillar 526 provides a connection to a chip 542 (col.11: 18-19). Gilleo et al. teaches that pillar 526 is a separate material (elastomeric) structure that is stenciled on the pad 523 of the continuous conductive metal trace and then plated with a conductive metal shell 530 that is electro-mechanically connected to pad 523 of the continuous conductive trace (col.11: 2-11 and 16-17). Therefore pillar 526 is not an integral part of the continuous conductive metal trace.

b) Anderson et al. (US 5,401,911) discloses, in Fig. 18: a circuit substrate 100 comprising a continuous conductive trace 182 having an opening with tapered sidewalls that receive a conductive metal ball 16, the diameter of the opening first decreasing a small amount then increasing greatly as height increases.

c) Yamamoto (US 5,777,851) discloses, in Figs. 1-3, routing lines of wiring structure 14 embedded in an insulative base 11, the routing lines having openings 14a,b,c,d for receiving screws 19 that electrically and mechanically connect rectifier 17 and capacitors 18 to the routing lines of wiring structure 14 (col.4: 4-35).

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Vigushin whose telephone number is 703-308-1205. The examiner can normally be reached on 8:30AM-5:00PM Mo-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7382 for regular communications and 703-308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



John B. Vigushin
Examiner
Art Unit 2827

jbv
May 20, 2003